

State of Utah

DEPARTMENT OF NATURAL RESOURCES

MICHAEL R. STYLER Executive Director

Division of Oil, Gas and Mining

JOHN R. BAZA

Division Director

4019/0078 Mike

January 5, 2015

Dahl Black Pinnacle Potash International, Ltd. 111 Congress, Suite 2020 Austin, Texas 78701

Subject: Approval of Amended Notice of Intention to Conduct Exploration, Pinnacle Potash

International, Crescent State #21-22 Project, E/019/0078, Grand County, Utah

Dear Mr. Black:

The Division of Oil, Gas and Mining approves the amended Notice of Intention to Conduct Exploration received December 19, 2014, for the Crescent State #21-22 project. (This is the name of the project on the Division's records, but other wells are associated with this project.) The Division has determined that adequate surety is in place to account for the amendments to the notice, and no additional surety is required at this time.

You may commence with your exploration activities as outlined. Please be advised that you are bound by the same mining and reclamation standards as outlined in the original exploration notice of intention and must receive written acceptance from this office and appropriate approvals from other agencies prior to creating any additional disturbance.

Thank you for your cooperation. When in the area, a member of the Division staff will examine the site. In reply, please refer to file number E/019/0078.

Sincerely,

Paul B. Baker

Minerals Program Manager

PBB: mpb:mj

Enclosure: Stamped copy of amended NOI

Cc: Jerry Mansfield, SITLA (jmansfield@utah.gov)

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-> please finalize

December 29, 2014

Dahl Black Pinnacle Potash International, Ltd. 111 Congress, Suite 2020 Austin, Texas 78701

Subject:

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FORM MR-EXP (Revised September 30, 2009)

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DIV. OIL GAS & MINING

For Division Use Only File Number	2500/11
Date NOI Received	
Date NOI Approved	t t
Date NOI Expires	
DOGM Lead Mile	e
Permit Fee \$	Ck #
i,	390

STATE OF UTAH
DEPARTMENT OF NATURAL RESOURCES
DIVISION OF OIL, GAS AND MINING
1594 West North Temple Suite 1210

Box 145801

Salt Lake City, Utah 84114-5801 Telephone: (801) 538-5291 - Fax: (801) 359-3940 **RECEIVED DEC 2 9** 2014

DIV. OF OIL CAR & MANAGE

NOTICE OF INTENTION TO CONDUCT EXPLORATION

The informational requirements of this form are based on provisions of the Mined Land Reclamation Act, Title 40-8, Utah Code Annotated, 1953, as amended, and the General Rules as promulgated under the Utah Minerals Regulatory Program.

Note on confidentiality: Information provided in the notice of intention relating to the location, size, or nature of the mineral deposit that is clearly marked confidential will be protected as confidential. Each page or map requested to be kept confidential must be stamped or marked as such.

If extra space is required to completely answer any section, please attach additional sheets and include cross-referenced page numbers as necessary. The Permittee / Operator may submit this information on an alternate form, but the same or similar format and content must be used.

R647-1-106 - "Exploration" means surface disturbing activities conducted for the purpose of discovering a deposit or mineral deposit, delineating the boundaries of a deposit or mineral deposit, and identifying regions or specific areas in which deposits or mineral deposits are most likely to exist. "Exploration" includes, but is not limited to: sinking shafts; tunneling; drilling holes and digging pits or cuts; building of roads, and other access ways;" (and constructing and operating other facilities related to these activities).

I. GENERAL INFORMATION (Rule R647-2-104)

1. Name of Mine: CRESCENT STATE #21-22, CRESCENT STATE #12-16, CRESCENT STATE #22-09, CRESCENT STATE #13-10, CRESCENT STATE #11-23, CRESCENT STATE #24-16, CRESCENT STATE #21-15, CRESCENT STATE #14-15, CRESCENT STATE #42-10

2.A.	Name of Entity Applying for Permit: Pinnacl Contact (Authorized Officer): Dahl Black	e Potash International, Ltd. (PPI)
	Address: 111 Congress, Suite 2020	
	City, State, Zip: Austin, Texas 78701	
	Phone: <u>(512) 628-2835</u>	Fax: (512) 343-8885
	E-mail Address: <u>dblack@pinnaclepotash.com</u>	
	Entity is a: Corporation () LLC () Partnership (X) General or X limited Individual () Other (specify type)	Sole Proprietorship (dba) ()

6.					nineral owner No			in writing?	•	
	If no,	why n	ot?						_	
7.	Does the	Entity	have le	gal rigi					ons on the I	and covered by
does ractivity	not satisfy the r on State Trus	notifica st Lanc ivities.	ntion require Is require Please	iiremer es a mil contac	nts of Mineral L nimum of 60 da	eases u ay notice	pon State to the T	te Trust Lai Frust Lands Lands Adm	nds. Explora Administrat	SITLA) at (801)
II.	PROJECT L	OCA1	ION & I	MAP (Rule R647-3-1	05)		4		
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1.	Project Lo	<u>ocatio</u>	n (legal d	descrip	tion):			DIV OII	GAS & MINI	NG
	County:							DIV. 011		
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	UTM East	See D	rill Plan		(if known)	1 MTU	North	See Drill F	lan	(If known)
	Name of Qua	d Map	for Loca	ition_C	Crescent Junc	tion Qua	adrangle	Utah – Gr	and Co. 15	minute series
2.					USGS 7.5 Min sting and/or pro			e 1"=2000')	that shows	project location
3.	Also includ	le an d fies:	peration	s map	(scale 1"=200'	or othe	r scale a	s approved	I by the Divis	sion) that

a. The area to be disturbed,

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Form MR-EXP

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Page 4

HI.	PROJECT DESCRIPTION (Rule 647-2-106)					
1.	DIV. OIL GAS & MINING					
	Minerals to be explored: Potash					
2.	Amount of material to be extracted, moved or proposed to be moved: estimated at net					
	500 cubic yards for each drill site.					
3.	Identify the type or method of exploration proposed (place an "X"):					
	Cuts Pits Trenches Shafts Tunnels					
	X Air Drilling X Fluid Drilling					
	Other (describe)					
4.	Proposed Disturbances (Approximate):					
	Drill Pads: How many? 9 Width 300 (ft) Length 300 (ft)					
	Note: Sites #21-22, #12-16, #22-09, #13-10 & #11-23 had pads 180' wide x 160' long					
	#14-15 was 250' wide x 250' long					
	Drill Holes: How many? 9 Depth ≤ 5000 (ft) Diameter 12 1/4" surface,					
	7" intermediate, 6 1/4" exploration (in)					
	Note: Boring #14-15 and beyond (excluding #13-10) will have the above hole sizes					
	Shafts, trenches, pits, cuts, or other types of disturbance.					
	Describe type, how many of each, and general dimensions. 6 pits (30'x40'x8') for drilling					
	cuttings (air and mud)					
	outings (all and mad)					
	The Croscopt State #22.22 well site will portially be used as an equipment staring area					
	The Crescent State #32-22 well site will partially be used as an equipment staging area					
	during drilling. The drilling contractor has been instructed to not store any hazardous material					
	on the site. The proposed dimensions of the staging area are 200'x400'.					
	x New Road(s): Length <u>20'-2600'</u> (ft) Width <u>15</u> (ft)					
	☐ Widening of Existing Roads					
	Current Length (ft) Width(ft)					
	Widened Length (ft) Width(ft)					
	Total project acreage to be disturbed 17.12 (divided into 9 sites) (acres)					
5.	Proposed exploration schedule (dates):					
	Begin: April 22 2014 End: May 9 2015 for entire exploration project					

12/19/14

PINNACLE POTASH INTERNATIONAL, Ltd (PPI)

111 Congress Avenue, Suite 2020 Austin, TX 78701 (512) 628-2810 **APPROVED**

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Contact -- PPI: Ricky Reese (318) 733-0106

Dahl Black

(318) 733-0106 (512) 628-2835 DIV. OIL GAS & MINING

Well Name & Number: Legal Description:

CRESCENT STATE # 21-22

Sec 22 T22S R19E, Grand County, UT

2150.8' FWL; 613' FNL

Lat: 38° 53' 19.64" N Long: 109° 48' 28.06" W

Elev: 4680'

Well Name & Number: Legal Description: **CRESCENT STATE # 12-16**

Sec 16 T22S R19E, Grand County, UT

2521.33' FEL; 821.66' FNL

Lat: 38° 54' 9.92" N Long: 109° 49' 27.25" W

Elev: 4728'

Well Name & Number: Legal Description:

CRESCENT STATE # 22-09

Sec 9 T22S R19E, Grand County, UT

747' FEL; 434.8' FNL

Lat: 38° 55' 5.95" N Long: 109° 49' 4.81" W

Elev: 4778'

Well Name & Number: Legal Description:

CRESCENT STATE # 13-10

Sec 10 T22S R19E, Grand County, UT

510' FWL; 1883.6' FSL

Lat: 38° 54' 38.55" N Long: 109° 48' 47.92" W

Elev: 4744'

Well Name & Number: Legal Description:

CRESCENT STATE # 11-23

Sec 23 T22S R19E, Grand County, UT

363.3' FWL; 701.3' FNL

Lat: 38° 53' 22.39" N Long: 109° 47' 47.64" W

Elev: 4689'

Well Name & Number: Legal Description:

CRESCENT STATE # 24-16

Sec 16 T22S R19E, Grand County, UT

146.9' FEL; 1747.22' FSL

Lat: 38° 53' 40.41" N Long: 109° 48' 55.32" W APPROVED

Elev: 4692'

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Well Name & Number: Legal Description: **CRESCENT STATE # 21-15**

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Sec 15 T22S R19E, Grand County, UT

2150.8' FWL; 613' FNL

Lat: 38° 53' 19.64" N Long: 109° 48' 28.06" W

Elev: 4680'

Well Name & Number: Legal Description: **CRESCENT STATE # 14-15**

Sec 15 T22S R19E, Grand County, UT

2521.33' FEL; 821.66' FNL

Lat: 38° 54' 9.92" N Long: 109° 49' 27.25" W

Elev: 4728'

Well Name & Number: Legal Description:

CRESCENT STATE # 42-10

Sec 10 T22S R19E, Grand County, UT

198.8' FEL; 1446.4' FNL

Lat: 38° 54' 54.88" N Long: 109° 47' 51.00" W

Elev: 4755'

Drilling Plan & Program (Exhibit / Attachment to PPI Form 3 Application)

I. Surface Formation

Mancos Shale

II. Estimated Tops of Important Formations / Geologic Markers

Mancos Shale surface to 820'

Formation	TVD	Subsea
Dakota	542'	4186'
Cedar Mountain	577'	4151'
Morrison	683'	4045'
Summerville	1329'	3399'
Entrada-Moab	1388'	3340'
Entrada-Dewey Bridge	1718'	3010'
Navajo	1745'	2983'
Kayenta	2282'	2446'
Wingate	2556'	2172'
Chinle	3007	1721'

Paradox Salt

3090' 1575'¹

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III. Projected / Possible Hydrocarbon (Oil/Gas) & Water Bearing Formations

<u>Formation</u>	Description	TVD	Subsea
Cedar Mountain	Water/Oil/Gas	577'	4151'
Morrison	Water/Oil/Gas	683'	4045'
Summerville	Water/Oil/Gas	1329'	3399'
Entrada-Moab	Water/Oil/Gas	1388'	3340'
Paradox Salt	Gas/Brine	3400'	1328'

Formation tops and water bearing and possible hydrocarbon zones were taken from the mud log data at the Crescent State #12-16 boring. Exact depths and quantities or qualities of groundwater are unknown. Wells and studies to this point indicate that the water will be saline. Extensive drilling over the years has discovered no significant oil, and minor amounts of natural gas. The above data projections are estimated and will likely require revision.

Note: All notable potential water zones discovered will be reported in accordance with State of Utah DOGM Form MR-EPR Mineral Exploration Progress Report.

IV. Proposed Hole Size, Casing Size, and Cementing Programs

These borings are exploratory only and will be plugged within 30 days of completion of drilling. For each of the exploration borings, the surface casing will be left in the hole when drilling is complete. After performing the required plugging below the intermediate casing, the casing will be cut and plugged 5' beneath the surface. The ore zone (top of salt to TD) will also be plugged.

Purpose	Hole Size (Dia.)	Casing OD	Wt., Grade, Cond.	Depth
Surface	12 1/4"	9 5/8"	36#/ft J-55	500'
Intermediate	8 3/4"	7"	23#/ft J-55	3100'
Exploration	6 1/4"	None	N/A	5000'

Please note that the borehole Total Depths (TD)'s and setting depths for the casing string may vary from the above table. Final depths and details of surface, intermediate, and borehole TD's as well as the surface casing string will be reported to Utah DOGM in accordance with proper Forms.

Drill Plan Detail

- 1. Rig up and drill, utilizing freshwater-based mud, 12 1/4" surface hole to a depth of 500'. Cuttings will be disposed of in an unlined 30'x40' pit that will be buried on site after hole completion.
- 2. Set 9 5/8" 36#/ft J-55 casing at 500' with float equipment cement to surface per cementing details in Drill Plan.
- 3. Drill, utilizing increased brine-based mud, 8 3/4" borehole to the top of the Paradox salt (approximate depth of 3100'). Cuttings will be disposed of in an unlined pit that will be buried on site after hole completion.
- 4. Set 7" 23#/ft J-55 casing at the top of salt with float equipment cement to surface per cementing details in Drill Plan.
- 5. Rig up oil-based mud system (OBM) for oil-based mud drilling.
- 6. Continuous core from bottom of rotary hole using 3.5" continuous wireline coring system using OBM. Cuttings from coring section will be disposed of in haul-off containers that will be emptied in an authorized disposal site after hole completion.

¹ the Paradox continues past TD at 5000'

- 7. Coring will continue to 5000' or less or until potash zone ends.
- 8. Spectral gamma ray, compensated neutron, caliper, resistivity, density, and temperature logs will be run over the entire cored interval.
- 9. Borehole will be circulated with brine to remove the oil based mud.
- **10.** Borehole will be plugged at the surface and throughout the core zone. The surface casing will be cut 5' beneath the surface and a boring marker will be installed.
- 11. Rig down core rig... move off location.

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V. Cementing Program

DIV. OIL GAS & MINING

Casing:

Surface:

237 SX Type III Cement

Weight: 14.6 #/gal Yield: 1.38 cu/ft/sk

Intermediate:

Lead: 279 SX Premium Lite FM

Weight: 12.1 #/gal Yield: 2.13 cu/ft/sk

Tail: 201 SX Type III Cement

Weight: 14.6 #/gal Yield: 1.38 cu/ft/sk

VI. Pressure Monitoring, Drilling Detail, Compliance, and Maintenance

All of the below data/information will be documented in the driller's log:

- Blowout preventer (BOP) pressure tests, including test pressures and results
- BOP all function tests
- Blowout prevention and Well Control drills (time & place)
- Choke Manifold Inspections
- Casing detail: # of joints, setting depth, OD, grade, weight, all pertinent job details
- Cementing detail: type, additives, sacks, cementing hardware (float equip etc), all pertinent job details
- Other pertinent cementing and casing detail as necessary (pressure tests, # of joints, etc)

VII. Operator's Minimum Specifications for Pressure Control

A 7 1/16" 3,000 psi Double Gate Hydraulic BOP with 7 1/16"Rotating Head; equipped with a 3,000 psi manual choke manifold is proposed to be installed. The BOP will be tested and charted using a BOP tester and test plug to 3,000 psi for 15 minutes. The Rotating Head will be tested to 1,000 psi for 15 minutes. All tests will be recorded in Driller's log. Below are the BOP specifications and figure:

•	Rotating Head	1000 psi
•	Kill Line Valves	5000 psi
•	Choke Manifold Valving	5000 psi
•	Chokes	5000 psi
•	Casing Head (Weld)	1500 psi
•	Upper Kelly Cock and Safety Valve	5000 psi
•	Dart Valve	5000 psi

VIII. Drilling Mediums

- A freshwater-based mud will be used to drill to the top of salt and near the ore zone. As the salt is approached, the water-based mud will gradually increase to brine-based concentrations to prevent salt dissolution and maintain bore integrity.
- The exploratory borehole will be cored using oil based mud.

IX. Water Supply

- No water pipelines will be laid for this borehole.
- No water well will be drilled for this borehole.
- Drilling water for this borehole will be hauled on existing, established roads, as well as newly constructed lease roads as depicted on attached survey plats
- Water will be obtained from Thompson, a nearby source of culinary municipal water through a direct payment to Thompson.

X. Blooie Line (Flare Line)

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A blooie line is currently not installed

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XI. Testing, Logging and Coring Programs

- Openhole Logging: Preferred logs are documented in "Drill Plan Detail." (Section IV)
 Gamma Ray (GR) logs will be included from TD to base of Intermediate Casing.
- Coring: As described in section IV, cores will be taken in the expected potash zone, 3800' to 5000'.
- No drill stem tests (DST)'s are planned

XII. Anticipated Abnormal Pressures or Temperatures

• Abnormal pressures and natural gas kicks have been reported within a general 20 mile radius of these wells. These gas kicks and over pressuring are anticipated in the Paradox Shale/Salt Sequence. Maximum Bottom Hole Pressure is not anticipated to exceed 4500 psi. Hydrogen sulfide (H2S) has also been reported in the area. Proper and certified H2S detection equipment and monitoring services will be employed during the drilling operation. No other hazardous gases or fluids have been found, reported or known to exist at these depths in the area.

XIII. Anticipated Starting Date and Duration of the Operations.

Verbal and/or written notifications listed below shall be submitted in accordance with instructions from and provisions of the Utah Division of Oil, Gas & Mining:

- Prior to beginning location and road construction
- Prior to spudding
- Prior to running casing, cementing, or BOP tests
- Prior to plugging the borehole, for formal/verbal plugging instructions
- Spills, blowouts, fires, leaks, accidents or other unusual occurrences shall be reported to the Division of Oil, Gas & Mining immediately





